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T & R LLP

TEL: 410 752 9893

P. 014

15 April 2003

Mr. Edward J. Lopata, Esq.
Tydings & Rosenberg LLP
100 East Pratt Street
Baltimore, MD 21202

Re: Lockwood v. Pacific Cycle, et al.

Dear Mr. Lopata:

This letter will constitute my preliminary report in this matter. At your request I have examined the bicycle at issue and reviewed documents including expert reports, expert credentials, bicycle owner's manuals, deposition transcripts, pleadings, photographs of the bicycle and a bicycle repair invoice.

Background:

According to the available materials, the bicycle at issue was produced by Pacific Cycle, purchased at Toys R Us in 1997, repaired in 1998 and involved in an accident in which William Lockwood was injured in 1999. The alleged cause of the accident was the separation of the steering tube from the fork crown while Mr. Lockwood was executing a "bunny hop" maneuver over a manhole cover.

PLAINTIFF'S
EXHIBIT

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Examination:

The bicycle was examined visually under room lighting conditions in Baltimore, MD on 10 April 2003. The appearance of the bicycle is consistent with the photographs which have been obtained by others. The bicycle has been disassembled, and it is obviously not in the same condition as it was immediately following the accident. In particular, the steerer tube is loose in the frame, suggesting that someone has removed the steerer tube for inspection and not retightened the connection. The record indicates that the bicycle has been shipped at least once in the box in which it was being stored at the time of the examination.

Several areas of the bicycle show evidence of very heavy use and repeated contact with pavement or other hard, abrasive materials. The ends of the handlebars are deformed in a manner which is consistent with many such impacts. Some components, such as the seat and the rear wheel, appear to be relatively recent replacements. The fork crown has separated from the steerer tube. The steerer tube has striations in the joint area, and there is very little evidence of deformation on the steerer tube; there is one area which may represent some deformation during final separation and/or impact with a hard surface following the final separation. There are indications that the bicycle saw considerable use with the rear wheel either bent or misaligned so that it rubbed on the frame.

The joint area of the fork crown exhibits two different appearances. In the lower portion, there are essentially undisturbed striations which would appear to correspond with the striations on the steerer tube. On the upper portion, the metal is smeared, consistent with repeated motion of the fork crown relative to the steerer tube. This damage is not consistent with a single, final separation event; rather, it is consistent with continued looseness of the joint between the steerer tube and the fork crown over a long period of use.

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Analysis:

The record indicates that the bicycle at issue was designed with three major objectives in mind:

1. To appeal to the customer as a "mountain bike" type bicycle.
2. To sell at Toys R Us for approximately \$150.00.
3. To meet all applicable regulations.

The record also indicates that the bicycle at issue was not designed for aggressive off-road riding and that it was not designed for stunt riding. The record is not clear whether the bicycle at issue was designed to "bunny hop" over a manhole cover when ridden by a person weighing 180 pounds.

The design process which was used included several parties: Toys R Us set the overall objectives; Pacific Cycle turned those objectives into design specifics; China Bicycle Company designed a bicycle to meet all of the applicable objectives, selecting from among off-the-shelf components manufactured by several companies, including SR Suntour. The crown fork assembly which was selected by Pacific Cycle was produced by SR Suntour.

The design used by SR Suntour for this particular crown fork assembly uses a steel steerer tube and a nonferrous fork crown; these components are joined together by a process described as thermal bonding. The record does not indicate precisely how this thermal bonding is accomplished in practice; it is assumed that the aluminum is heated and/or that the steel is cooled, but details are not available at this time. The resistance to relative motion between the steerer tube and the fork crown is aided by the presence of striations on the steerer tube which effectively lock the steerer tube into place in the fork crown. The condition of the joint portion of the fork crown is consistent with loosening of the joint and repeated rotary motion of the steerer tube in the fork crown. By all indications, the separation of the steerer tube and the fork crown was a progressive event and not a sudden failure.

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The record indicates that Mr. Lockwood noticed a looseness somewhere in the steering mechanism of the bicycle during 1998, the bicycle was taken to a bicycle mechanic and repairs were made to the bicycle at that time. The record does not indicate whether this looseness was the observed looseness of the steerer tube in the frame, a warning of the progressive failure in process or the often experienced looseness of the joint between the steerer tube and the handlebars.

It has been suggested that the integrity of the joint between the steerer tube and the fork crown would be improved by the use of welding and/or adhesive bonding. In practice the welding of steel to nonferrous metals is difficult to accomplish. Adhesive bonding might have added a small amount to the mechanical strength provided by the striations and the thermal bonding process, but at the time of the accident the joint had clearly failed to the point where the steerer tube was able to move within the fork crown; even in this failed condition, the bicycle continued to function until Mr. Lockwood's "bunny hop" maneuver.

The record indicates that the design of the crown fork assembly probably met the established objectives of price, appearance and performance at the time that the crown fork assembly left the control of SR Suntour and, indeed, the control of China Bicycle Company, Pacific Cycle and/or Toys R Us. After the bicycle left the control of these parties, it was subjected to considerable abuse, and as a result of that abuse, the connection between the steerer tube and the fork crown was separated, ultimately leading to the accident.

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Conclusions:

1. The crown fork assembly was designed and manufactured to meet the established objectives for the bicycle of price, appearance and performance.
2. The crown fork assembly failed as the result of abuse of the bicycle.
3. Despite the separation of the joint of the crown fork assembly, the joint continued to provide support and steering control of the bicycle until the "bunny hop" maneuver was attempted.

Obviously, as discovery continues in this matter, it may be necessary to modify or expand on these conclusions. Please let us know if we may be of further assistance with this or any other materials problem.

Sincerely,

Andrew W. Blackwood, Ph.D.
Vice President, Technical

AWB:fo

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